



Guidelines

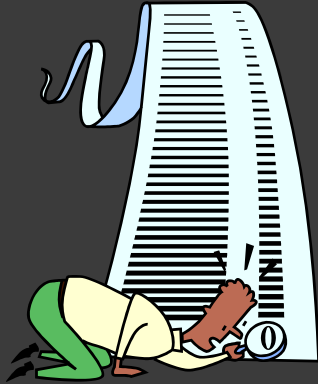
DESIGN REVIEW 1

First Design Review

- Friday, October 05, 2007
- On campus at Seoul National University

Deliverables

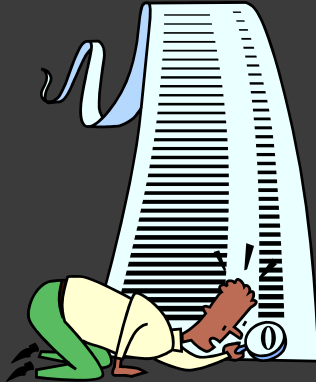
1



8 pages Report

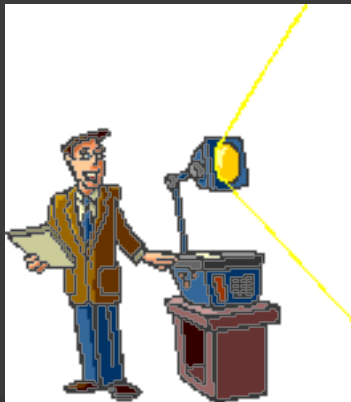
Deliverables

1



8 pages Report

2



10 min. Presentation

Content

- ① Introduction
- ① Needs identification and problem statement
- ① Market Analysis
- ① Product Engineering
 - ...
 - Final design concept

Introduction

- ① Company background
- ① Project overview
- ① Team formation: core competencies

Needs identification

- ① What are the top 5 ideas that you considered?
- ① How did you narrow down to one idea?
- ① **Problem statement**
- ① Qualitatively discuss internet-ready and closed-loop economy elements in your global product

Needs identification (Example)

Team 4, GPD 2006

	Educational value	Manufacturable	Marketable	Enjoyable	easy to learn	inspiration	competition (existing product)	summation
weight	5	3	5	3	2	2	2	
stability	21	26	25	24	28	27	27	544
truss	23	30	26	25	28	25	9	534
assembly kit	27	18	23	26	25	24	18	516
material factory	22	22	20	21	30	18	18	471
elastic game	16	23	17	21	18	13	27	413

Problem statement

- ① Use a camera to detect the location of the food in the refrigerator, and thereby reduce the energy loss while opening and closing the door

Problem statement

- ① Use a camera to detect the location of the food in the refrigerator, and thereby reduce the energy loss while opening and closing the door
- ② Reduce the change in temperature and humidity in a refrigerator caused by the interaction between the refrigerated and ambient environments

Problem statement

- It is very important to have a very clear problem statement
- A problem statement is not a solution idea
- It states the need in the market

Market analysis

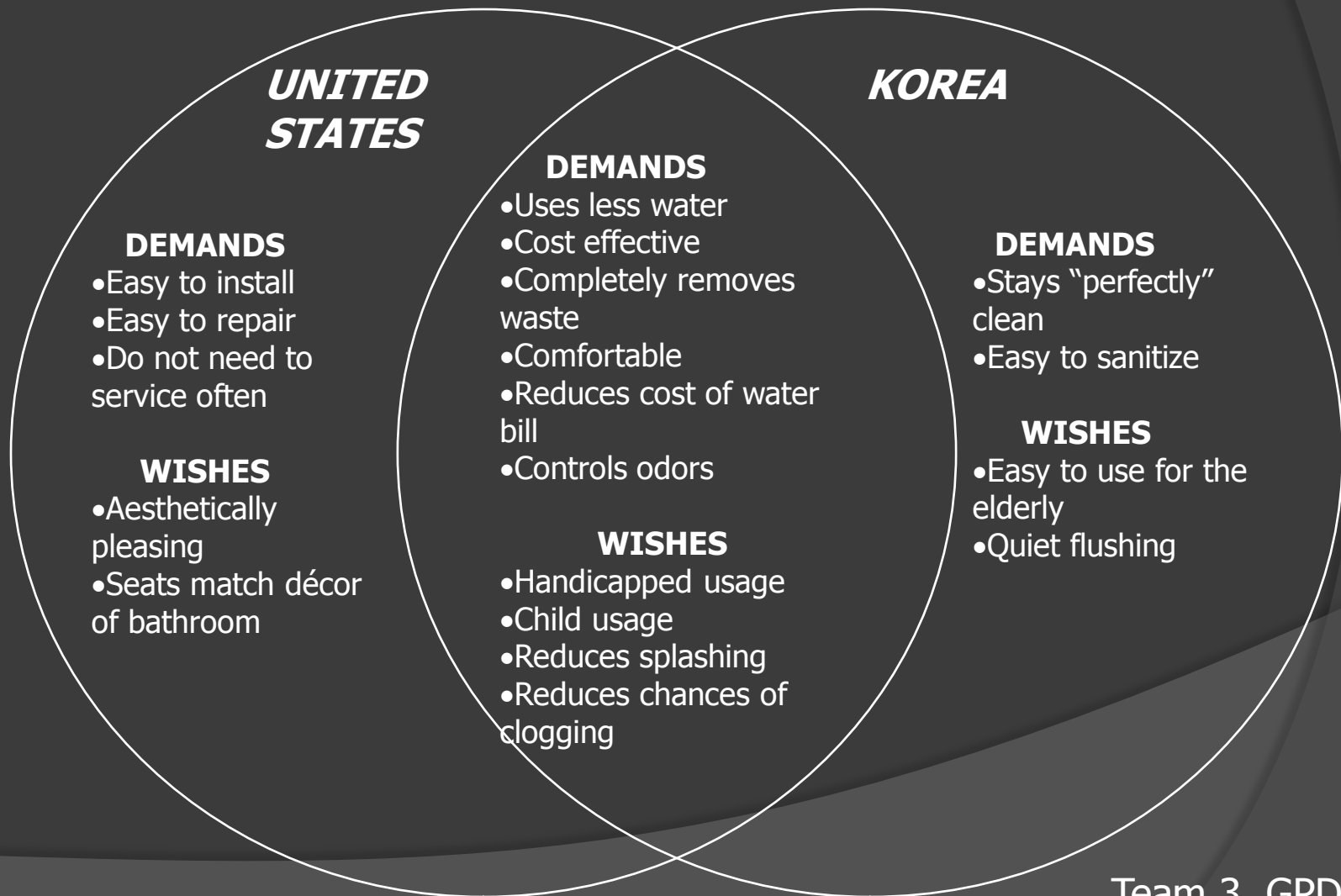
- ⦿ Primary market
- ⦿ Secondary market

- ⦿ Characteristics
- ⦿ Size
- ⦿ Competition

Market analysis (Example)


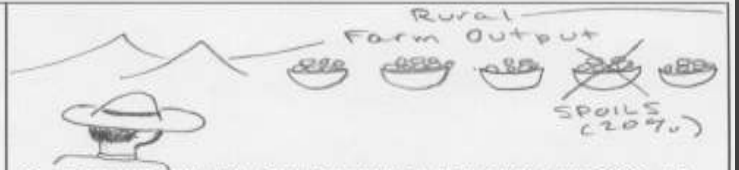


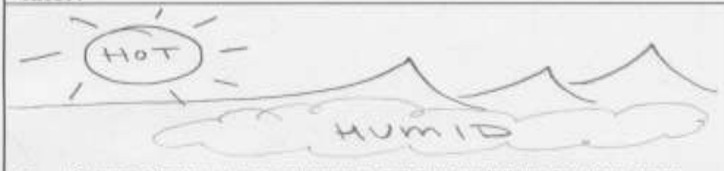
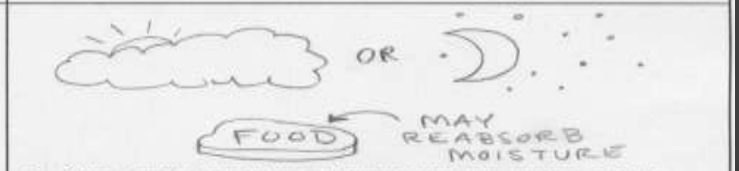

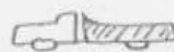

- Primary Market: Korea
- Customers: Homeowners
- Market Size: 119,000
- Unique Features
 - Green products are gaining popularity
 - ...
- Secondary Market: United States
- Customers: Homeowners and Builders of homes
- Market Size: 202,500
- Unique Features
 - “Do-it-yourself” market
 - ...

Market analysis (Example)



Storyboard (Example)

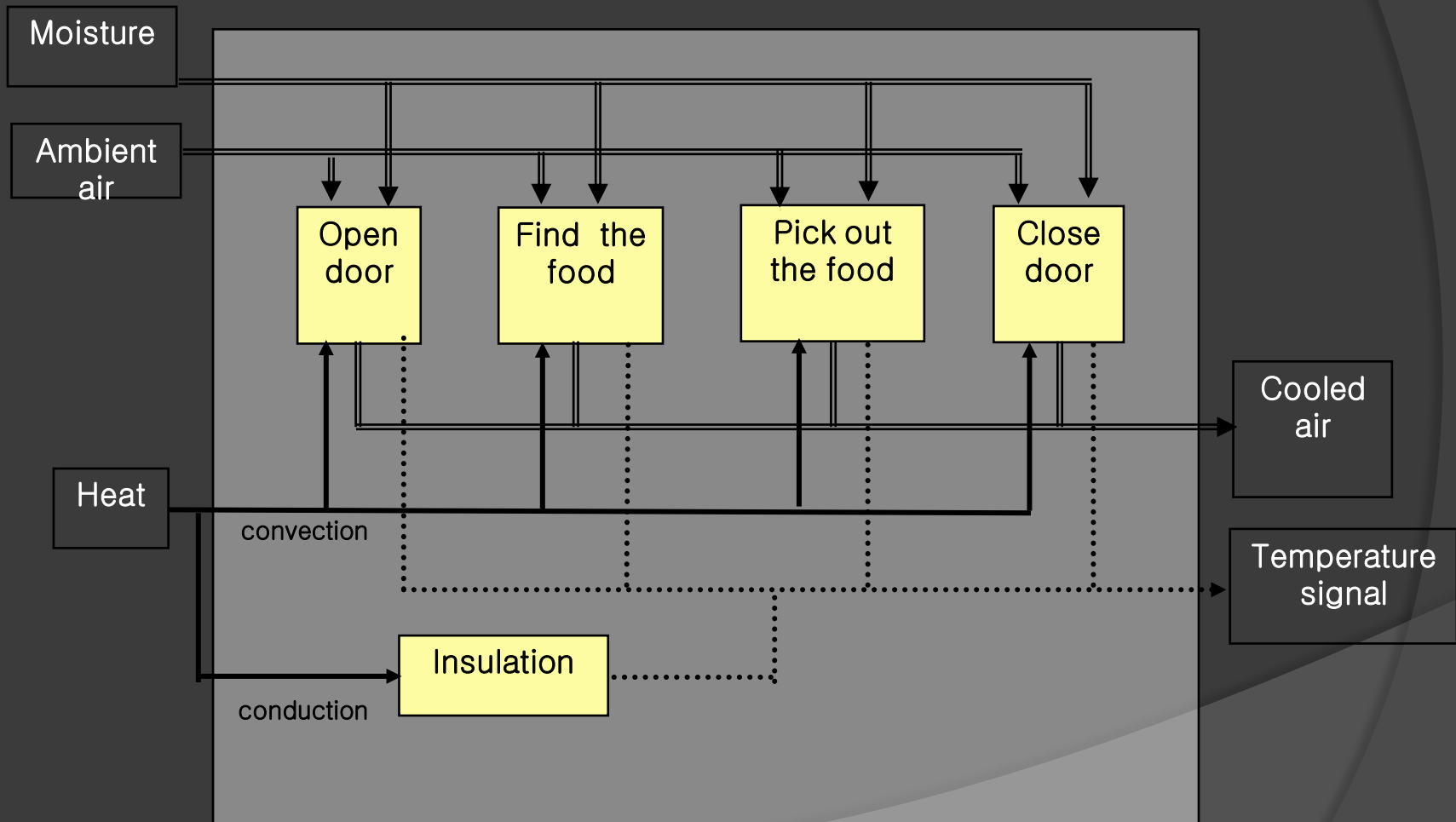
Life of Miguel – Hybrid Food Dryer’s Storyboard

 <p>1 – Miguel is a Bolivian that lives in the rural area about 4-6 hrs away from any major city. He has land but not enough land to farm. He is looking for a career opportunity.</p>	 <p>Rural Farm Output SPOILS (20%)</p> <p>2 – He notices that the farmers in his area lose 20% of their crops due to spoilage. He also notices that this loss happens year around since bananas, an abundant crop in the area, are ripe all year around.</p>
 <p>ABOUT TO SPOIL CHEAP</p> <p>PRESERVED VALUE</p> <p>3 – He realizes that when crops are about to spoil, they are very cheap. If he found a way of preserving the crops, he would be able to sell them at a higher price later.</p>	<p>GROWING DRIED FOOD MARKET</p> <p>LOCAL + </p> <p>4 – He recognizes that dried organic food is a growing market worldwide and also in the local area.</p>
 <p>HOT HUMID</p> <p>5 – Since there is no electric grid available in the area, he would like to use solar energy to dry the food, but the climate is still too humid for purely solar drying.</p>	 <p>OR</p> <p>FOOD MAY REABSORB MOISTURE</p> <p>6- Also, since crops sometimes require over a day to dry, he feels that night and even cloudy days would disrupt his demanding business, since food that is about to spoil needs to be preserved immediately and at the quickest rate.</p>
 <p>BIOMASS</p> <p>7 – With WIT’s Hybrid Food Dryer, Miguel’s needs are met, and he is able to use available renewable biomass for his alternative fuel to sunlight.</p>	<p>ONLY NEEDS 1 TRUCK (NOT 6, LIKE COMPETITORS)</p> <p> </p> <p>8 – Since Miguel’s food drying business is located right in the producing areas, he has a competitive advantage over other food dryers in the region due to significantly decreased transportation costs.</p>

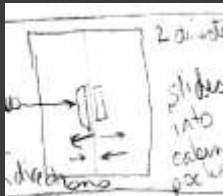
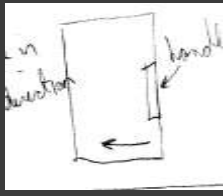
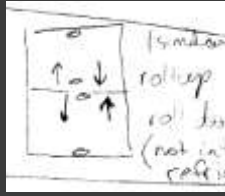



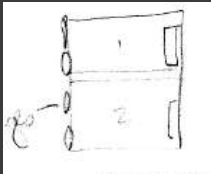
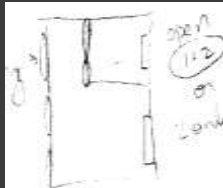
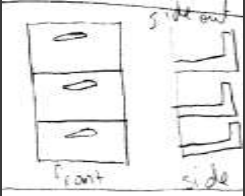
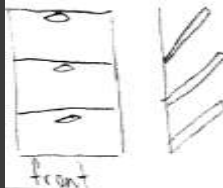
Product engineering

- Do you need to restate the problem?
- Functional analysis
- Working principles
- Design alternatives
- Final concept

Functional analysis (Example)

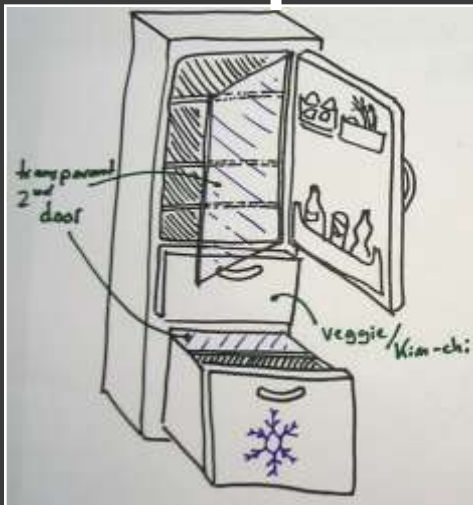


Working principles (Example)

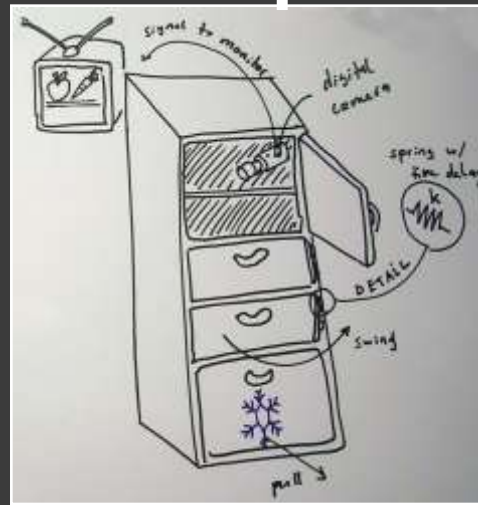
Open door					
Sliding door			Rolling doors (like a garage)		
Isolated environment			Top loading compartment		
Multiple doors					
Multiple drawers					

Concept selection (Example)

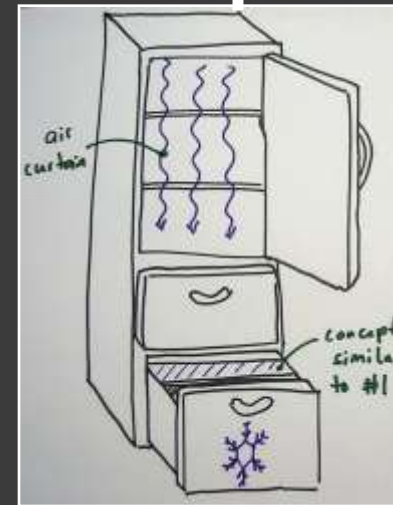
Concept #1



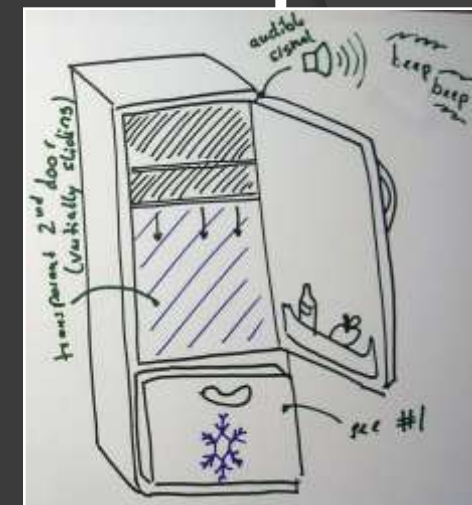
Concept #2



Concept #3



Concept #4



		Selection Criterion			Design Concepts			
	Item	Details	Weight	#1	#2	#3	#4	
1	Commercial feasibility	Will people buy it?	2	2	4	3	1	
2	Schedule feasibility	Limited to two months	2	3	2	1	4	
3	Manufacturability	Ease of manufacturing	3	4	2	1	3	
4	Sustainability	Energy savings impact	3	4	1	2	3	
5	Ergonomics	Usability	1	2	4	3	1	
		Totals		36	34	24	18	

Explain

- Internet-ready
- How does it enable Closed-loop economy?
- Global product – What is core and what is varying?

Content (contd...)

- ⦿ References
- ⦿ Appendix (0-8pages)
 - Not the main document
 - Important figures, tables should be in main document.

Content: Charts and figures

- ⦿ Must contribute to understanding of the material
- ⦿ **Two second rule:** A reader takes approximately 2 seconds to determine whether the figure or chart can be interpreted
- ⦿ Scanned pictures: Try 300 dpi, png images

Report mechanics:
Read for typos



Report mechanics: What is important?



Report mechanics: Read for logic



Deadlines

- DR1 presentation on October 05 2007
- DR1 reports on October 04, 2007 (5pm) to your instructor
- DR1 presentation slides on October 05, 2007 (8am) to Mr. Seungbum Ha at SNU



- Stick to the Limits, and deadlines!!!

- PRACTICE YOUR PRESENTATION!